

Abstract

A process for the acylation of an aromatic compound(I), with or without comprising nitro group(s), by an acylating agent(II), comprising at least one carbonyl group, using a reusable solid catalyst, which comprises,

- i) reacting under stirring a crystalline micro- or meso- porous inorganic solid comprising surface hydroxyl groups with at least one anhydrous metal halide selected from anhydrous halides of Al, Ga, In, Tl and Fe, dissolved in non-aqueous solvent, with the metal halide to the inorganic solid weight ratio in the range from 0.01 to 1.0 in the presence or absence of a flowing inert gas at a temperature in the range from 20 °C to 200 °C, such that the amount of metal halide(s) consumed in the reaction is at least 0.1 mmol per gram of the inorganic solid and also the amount of hydrogen halide evolved in the reaction is at least 0.1 mole per mole of the metal halide(s) consumed in the reaction;
- ii) separating the resulting solid from the reaction mixture obtained from step(i), washing by the non-aqueous solvent and drying under moisture-free atmosphere;
- iii) contacting in a stirred batch reactor a liquid reaction mixture comprising aromatic compound(I) and acylating agent(II) with the inorganic solid obtained from step(ii), solid catalysts(III) in catalytic amounts at the following reaction conditions: the weight ratio of solid catalyst(III) to acylating agent(II) in the range from 0.005 to 1.0, the mole ratio of acylating agent(II) to aromatic compound(I) in the range from 0.01 to 10,

the temperature in the range from 50 °C to 300 °C and the pressure at least atmospheric one;

- iv) separating the solid catalyst(III) and isolating the product(s), and the reactants, aromatic compound(I) and acylating agent(II) from the reaction mixture, and
- v) recycling the solid catalysts(III) for its reuse to step(iii), is disclosed.